

fourths the length of the body, sparsely haired, pale yellowish; 14 segments, the fifth with a cylindrical basal enlargement about two and one-half times its diameter and a moderately stout stem of nearly equal length. Palpi, first segment transverse, the second subquadrate, with a length one-half greater than its width and almost fused with a rudimentary third segment. Ovipositor short, the terminal lobes narrowly oval. Otherwise about as in the male.

This species was reared from the seed pods of *Hibiscus militaris* at Tallulah, LOUISIANA, in August, 1933, by Dr. R. W. Harned and submitted for study by Dr. Harold Morrison, in charge of the Division of Insect Identification, U. S. Bureau of Entomology and Plant Quarantine. *Type*: the male described above, United States National Museum, Washington, D. C.

Notes on the Taxonomic Status of Certain Species of the Genus *Chlorops* (Diptera, Chloropidae).*

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An examination of the cotypes of *Chlorops ingrata* Williston [at present placed as a synonym of *Pseudogaurax anchora* (Loew)] has revealed its true status as a valid species, and has suggested a brief review of the case, with notes on the types.

The bulletin of the Ohio Agricultural Experiment Station for 1893 (11) contained the description of a new species, *Chlorops ingrata*, by S. W. Williston, based on "two specimens, Ohio, Prof. F. M. Webster." In the same bulletin were two short articles by Webster (9, 10), giving the rearing records of various insects and noting that *ingrata* had been bred from supposedly aborted galls on the grass, *Muhlenbergia mexicana* Trin., each gall containing a single puparium in a vertical position. Four years earlier, Webster (8) had summarized the records of insects affecting the upper portions of the culms and causing a dead and withered top. Among these were several undetermined species of *Chlorops*. One larva, in particular,

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"was observed burrowing in the terminal internode of a species of grass belonging to the genus *Muhlenbergia*, possibly *M. mexicana* Trin.", and it is quite probable that this was the species later described as *C. ingrata*. Coquillett (6, p. 71) in 1898 gave more definite data, as follows: "On Aug. 12, 1884, several plants of *Muhlenbergia mexicana* were received from F. M. Webster, Oxford, Ind. At the tips of the plants were gall-like swellings, each containing a larva or puparium of this insect. The adult flies issued May 12, 15, 21 and June 1 of the following year."

Adams (1) included this species in his 1903 key to the genus *Chlorops*, and Aldrich (3, p. 633) listed it under that genus in his catalogue. In Theodor Becker's 1912 monograph of the Nearctic Chloropidae (4), however, we find it listed in a different subfamily, as a synonym of *Gaurax anchora* Loew, now known as *Pseudogaurax anchora*. The synonymy is given on the authority of Coquillett and apparently accepted by Becker.

The two cotypes (neither was designated as the type) are in the Snow Entomological Collection at the University of Kansas, and both agree in every detail with Williston's description. Both bear a small label, "Ohio," in addition to the type label. The fact noted by Williston that in the male, the triangle is "nearly contiguous above with the eyes," is probably due solely to the condition of the specimen, which was apparently slightly teneral, and shriveled somewhat in drying. Probably as a further result of this, the front of the male projects anteriorly to a distance subequal to the length of the eye (in dorsal aspect), whereas in the female and in compared specimens the projection is not as great. In the female type there is also a wider space between the triangle and the eyes at the vertex.

Upon comparison of Williston's description with a description or specimens of *Pseudogaurax anchora*, it is difficult to believe that they could be confused. In addition to the differences evident in the descriptions, there is a very distinct contrast in the biology as thus far recorded, the *Chlorops* being a gall-former on grass, and the *Gaurax* a scavenger in the egg-sacs of spiders, cocoons of various moths, etc.

The exact generic position of the species is difficult to determine. Adams (1) has it in his key to the species of *Chlorops*, but the types will not run to *ingrata* in that key by any stretch of the imagination. Instead, they run to a group of three species—*cuccra* Lw., *sanguinolenta* Lw., and *maculosa* Lw.—which then comprised the subgenus *Anthracophaga*. In Becker's key to *Chlorops* (4), the types run to a section including *palpalis* Adams, *crocota* Lw. var., and *abdominalis* Coq., but they agree with none of these species. In most respects, *ingrata* belongs in *Anthracophaga*, having the projecting front, receding face, large triangle, slightly produced third antennal joint, black palpi, thick brown wing-veins, dull color, and broad, stocky appearance usually associated with that genus. Becker apparently redescribed it under the name of *Anthracophaga interrupta*. It is proposed to place the species as *Anthracophaga ingrata* (Will.), with *interrupta* as its synonym.

ANTHRACOPHAGA INGRATA (Will.). New combination.

Chlorops ingrata Williston.

Anthracophaga interrupta Becker 1912, new synonym.

Redescription from the types.

♂ ♀. Large, broadly-built species, dull, yellow and black, with anteriorly extended head, black palpi, deep median sulcus on triangle, and heavy dark brown wing-veins. Length, 3-3½ mm.

Head very broad, dull yellow, the eyes small, front over one-half the head width in the female, less in the male due to shrinkage, projecting considerably beyond the eyes. Triangle very large, shining, three-fourths the width of front at base, apex reaching acutely to the anterior margin of the extended front, strongly punctate on the sides, each puncture bearing a minute hair, a deep median sulcus extending from the median ocellus to the apex. The posterior margins of the triangle, the ocellar spot, and a stripe down the median sulcus black in both specimens; rest of triangle dark cream-colored in the male ["shining luteous"—Williston], darkened to brown in the female. A black, divergent outer vertical bristle near corner of each eye, a smaller, convergent inner vertical at the hind corners of the triangle. Occiput yellow with two black vittae, as continuations from the triangle. In lateral aspect, the front moderately projecting, face strongly receding, eyes diagonally placed,

cheeks broad, equal to diameter of third antennal joint and over one-third the eye-height. Face, cheeks, mouth cavity and proboscis yellow, the cheek margins, lateral and median facial ridges, clypeus and palpi black. Third antennal joint slightly longer than broad, subreniform, orange with black apex. Arista dusky yellowish, brown at base, scarcely thickened.

Mesonotum dull clay-yellow, the three stripes, supra-alar vittulae, and a small spot on each humerus, moderately dull black. Median stripe about three-fourths the length of notum, the other vittae and the vittulae extending to the post-alar callus. One notopleural and one postalar bristle. Scutellum large, subtriangular with rounded apex, a pair of large apical and one pair of smaller subapical bristles, yellow ventrally, the sides of the disk light brown and beset with short black hairs, the center of the disk occupied by a pale yellow, glabrous, flattened and depressed triangular area. Metanotum black. Pleura dull yellow, with five blackish-brown spots, below the anterior spiracle, on the antero-ventral angles of mesopleura and pteropleura, large sternopleural spot, and a small one on hypopleura.

Abdomen: segments with broad, brown to blackish bands on the posterior margins, a median extension of pigment joining each band to the preceding. Base and venter yellow.

Legs: fore coxae dark brown and yellow-marked, femora black or dark brown, the tips yellowish, tibiae yellowish, the middle of hind tibiae and all tarsi brown. No "sensory area" on hind tibiae.

Wings cinereous hyaline, with dark brown veins. Costa slightly exceeds tip of third vein, second costal segment one and one-half times as long as the third, costal fracture weak. First vein thickened. Third and fourth veins widely divergent. Hind cross-vein twice as long as small cross-vein, and about one and one-quarter times its length from the small. Halteres with yellow pedicel and white knob.

Cotypes; two specimens, OHIO (F. M. Webster). Reared from galls on *Muhlenbergia mexicana*. In Snow Entomological Collection, University of Kansas.

Additional records: INDIANA: several specimens reared from galls on *Muhlenbergia mexicana* Trin., received from F. M. Webster, Oxford, Ind. (Coquillett, 1898). KANSAS: eight specimens, emerged March 28, 29, and 31, 1934, from galls at the tip of culms of *Muhlenbergia racemosa* (Michx.)*, collected in Pottawatomie County, near Westmoreland (D. A. Wilbur); one, Marion County, Mar. 28, 1934, reared from

Muhlenbergia sp. (D. A. Wilbur); one, Jackson County, Mar. 26, 1934, reared from *Muhlenbergia* sp., probably *schreberi* Gmel. (D. A. Wilbur).

Two other specimens were also found in the C. F. Adams Collection of Chloropidae at the University of Arkansas, bearing a handwritten label, "*Chlorops ingrata*," but no locality label. These specimens and four from Pottawatomie County, Kansas, were compared in detail with the types and found to be identical. Considerable variation was noted in the extent of puncturing on the triangle, color on the third antennal joint and scutellum, and intensity of color of the triangle.

The two males from Jackson and Marion Counties, Kansas, were also compared with the types, and found to be similar except for entirely black antennae and smaller size. These differences are of doubtful significance, and the specimens are therefore placed as *ingrata*. Further, they fit the description of *Anthracophaga interrupta* Becker (1912) exactly, and I believe that this species is a synonym of *ingrata* Williston.

Ingrata is very close to *Chlorops fossac* Becker (4), which has the deep median sulcus in the triangle, but which differs principally in having small, entirely black antennae, broad cheeks, and black legs. The other parts of the descriptions are so similar that these two species may be found to be synonymous when more material is available. Perhaps *fossac* should also be transferred to *Anthracophaga*.

***Chlorops adamsi* nom. nov.**

Chlorops annulata Adams nec Walker.

Francis Walker in 1849 (7) described a new species from Canada, which he called *Chlorops annulata*. Loew believed it to be a *Chloropisca*, but Becker thought it more likely a *Diplo-toxa* or *Anthracophaga*. Years later, Adams (2) described a species from Louisiana to which he gave the same name, but Becker, although recognizing that it was preoccupied, continued

* Grasses identified by Dr. F. C. Gates, of the Dept. of Botany, Kansas State College.

to use *annulata* Adams on the ground that Walker's species undoubtedly was not a *Chlorops*. Prior use of the name in the genus, however, makes *annulata* Adams a homonym, and a new name is proposed to straighten out the difficulty.

CHLOROPS CINERAPENNIS Adams (1903, p. 40).

Chlorops albifascies Adams (1903, p. 42). New synonym.

The original spelling of each name is retained here, although Aldrich (3) emended the former to *albifascies*, and both Aldrich and Becker (4) used *cincrapennis* for the latter.

The types of both species are in the Snow Entomological Collection at the University of Kansas, and were recently studied and compared. The two descriptions are almost identical, except that *albifascies* is said to have a "shallow longitudinal sulcus" on the triangle, and black third antennal joint, whereas for *cincrapennis* no mention is made of a sulcus, and the antennal joint is black with yellow base. Using the latter character as a primary basis for separation, Becker locates the two in different sections of his key, and Adams himself separated them on this point. Strangely enough, however, in view of the close proximity of the two in Adams' publication, the types were found to be identical. *Cincrapennis* also has the sulcus, though it was not mentioned by Adams. Furthermore, it was found that the "wholly black" third antennal joint of *albifascies* was really reddish on the basal fourth. In all other particulars, also, the two type series were found to coincide, and *albifascies* therefore becomes an absolute synonym of *cincrapennis*, which has page priority. This species is very close to *sulphurea* Lw., and may eventually prove to be merely a variety of that species.

Incidentally, the figure labeled *Chlorops albifascies* in Becker's monograph (1912, pl. 1, fig. 3) is not *albifascies*, but some other species.

CHLOROPISCA GLABRA (Meig.).

Chlorops halteralis Adams.

Becker (4) noted that the description of *halteralis* Adams was very close to that of *Chloropisca glabra*, and he placed it as a probable synonym of Meigen's species, which is a very com-

mon fly in North America. The type of *halteralis* has been examined at the University of Kansas, and Becker's synonymy is verified. The specimen is smaller than the usual specimens of *glabra*, but otherwise is identical.

CHLOROPS LITURATA Adams (1903).

Chlorops stigmatalis Becker (1912) new synonym.

Becker's species was described as *quadrimaculata* in his monograph, but the name was found to be preoccupied and was later changed to *stigmatalis* (5). A specimen determined by Aldrich as this species was compared with the cotypic series of *liturata* in the Snow Collection at the University of Kansas, and found to be the same. Likewise, a number of specimens from Lander, Wyoming, were compared with the cotypes of *liturata* (type locality: Lusk, Wyo.) and found to be identical. Comparison of the descriptions showed their similarity, the essential difference being the presence of fine lateral furrows on the triangle of *stigmatalis*. The types of *liturata* Adams also show this peculiarity, although it passed unmentioned in Adams' description. *Stigmatalis* is therefore placed as a synonym of the earlier species.

LITERATURE CITED.

- (1) ADAMS, C. F. 1903. Dipterological contributions. Kans. Univ. Sci. Bul. 2:21-47. (Key to *Chlorops*, 37-39).
- (2) ————— 1904. Descriptions of new Oscinidae. ENT. NEWS 15:303-304.
- (3) ALDRICH, J. M. 1905. Catalogue of North American Diptera. Smithsn. Misc. Coll. 46:680 pp.
- (4) BECKER, TH. 1912. Chloropidae. Eine monographische Studie. IV. Nearktische Region. Ann. Hist. Nat. Mus. Natl. Hung. 10:21-120.
- (5) ————— 1912. Berichtigungen zur Monographie der Chloropiden. Loc. cit., 10:645-646.
- (6) COQUILLET, D. W. 1898. On the habits of the Oscinidae and Agromyzidae, reared at the U. S. Department of Agriculture. U. S. D. A., Div. Ent., Bul. 10 (n.s.): 70-79.
- (7) WALKER, FRANCIS. 1849. List of the specimens of dipterous insects in the collection of the British Museum. Part IV. London. (*Chlorops annulata*, p. 1119).
- (8) WEBSTER, F. M. 1889. Notes on some species of insects

which affect the upper portion of the stems of some grasses. *Insect Life*, 1:372-374.

- (9) ————— 1893a. A dipterous gall-maker and its associates. *Ohio Agr. Expt. Sta., Techn. Ser., Bul.* 1: 154-155.
- (10) ————— 1893b. Notes on species of Ohio Hymenoptera and Diptera hitherto undescribed. *Loc. cit.*, 1:157-158.
- (11) WILLISTON, S. W. 1893. Description of a species of *Chlorops* reared from galls on *Muhlenbergia mexicana*, by F. M. Webster. *Loc. cit.*, 1:156-157.

Dictionary of Entomological terms: In preparation.

Authors invite correspondence relative thereto and request new words as well as references to articles citing terms or dealing in any way with nomenclature.

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Entomological Literature

COMPILED BY LAURA S. MACKEY UNDER THE SUPERVISION OF E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The figures within brackets [] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of ENTOMOLOGICAL NEWS for 10c. The number of, or annual volume, and in some cases the part, part, &c. the latter within () follows; then the pagination follows the colon :

All continued papers, with few exceptions, are recorded only at their first installments.

(*) Papers containing new forms or names not so stated in titles, have an * within parentheses thus (*) following the pagination of reference to paper.

(S) Papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

Note. Titles of papers containing new forms or new names will be indicated by an asterisk within parentheses at end of reference, (*).

Papers published in the Entomological News are not listed.

New Titles of Periodicals and Serials Referred to.

112. *Anales del Instituto de Biologia Mexico.*

GENERAL.—Aldrich, J. M.—Obituary and bibliography. By A. L. Melander. [5] 41: 133-149, ill. Dunn, L. H.—Entomological investigations in the Chiriqui Region